

International IR Rectifier

100BGQ100
100BGQ100J

SCHOTTKY RECTIFIER

100 Amp

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Rectangular waveform	100	A
@ T_C	129	°C
I_{DC} Maximum	141	A
V_{RRM}	100	V
I_{FSM} @ $t_p = 5 \mu s$ sine	6300	A
V_F @100Apk typical	0.74	V
@ T_J	125	°C
T_J range	-55 to 175	°C

Description/ Features

This Schottky rectifier has been optimized for low reverse leakage at high temperature

The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical applications are in switching power supplies, converters, reverse battery protection, and redundant power subsystems.

- 175°C T_J operation
- High Frequency Operation
- Low forward voltage drop
- Continuous High Current operation
- Guard ring for enhanced ruggedness and long term reliability
- **Pow!Rtab™ package**

Case Styles

100BGQ100	100BGQ100J
	

Voltage Ratings

Part number	100BGQ100, 100BGQ100J
V_R Max. DC Reverse Voltage (V)	100
V_{RWM} Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

Parameters	Values	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	100	A	50% duty cycle @ $T_C = 129^\circ\text{C}$, rectangular wave form
$I_{F(RMS)}$ RMS Forward Current	141	A	$T_C = 120^\circ\text{C}$
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	6300	A	5 μs Sine or 3 μs Rect. pulse
	800		10ms Sine or 6ms Rect. pulse
E_{AS} Non-Repetitive Avalanche Energy	9	mJ	Following any rated load condition and with rated V_{RWM} applied
I_{AR} Repetitive Avalanche Current	2	A	$T_J = 25^\circ\text{C}$, $I_{AS} = 2$ Amps, $L = 4.5$ mH
			Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A = 1.5 \times V_R$ typical

Electrical Specifications

Parameters	Values		Units	Conditions	
	Typ.	Max.			
V_{FM} Forward Voltage Drop (1) (2)	0.80	0.84	V	@ 50A	$T_J = 25^\circ\text{C}$
	0.96	1.04	V	@ 100A	
	0.64	0.66	V	@ 50A	$T_J = 125^\circ\text{C}$
	0.74	0.77	V	@ 100A	
I_{RM} Reverse Leakage Current (1)	22	300	μA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_R$
	14	18	mA	$T_J = 125^\circ\text{C}$	
$V_{F(TO)}$ Threshold Voltage	0.484		V	$T_J = T_J \text{ max.}$	
r_t Forward Slope Resistance	2.0		m Ω		
C_T Max. Junction Capacitance	1320		pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C	
L_S Typical Series Inductance	3.5		nH	Measured from tab to mounting plane	
dv/dt Max. Voltage Rate of Change (Rated V_R)	10000		V/ μs		

(1) Pulse Width < 300 μs , Duty Cycle < 2%(2) $V_{FM} = V_{F(TO)} + r_t \times I_F$

Thermal-Mechanical Specifications

Parameters		Values	Units	Conditions
T _j	Max. Junction Temperature Range	-55 to 175	°C	
T _{stg}	Max. Storage Temperature Range	-55 to 175	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case	0.50	°C/W	DC operation
R _{thCS}	Typical Thermal Resistance, Case to Heatsink	0.20	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight	5(0.18)	g(oz.)	
T	Mounting Torque	Min.	1.2(10)	N*m (lbf-in)
		Max.	2.4(20)	
Case Style		PowIRtab™		

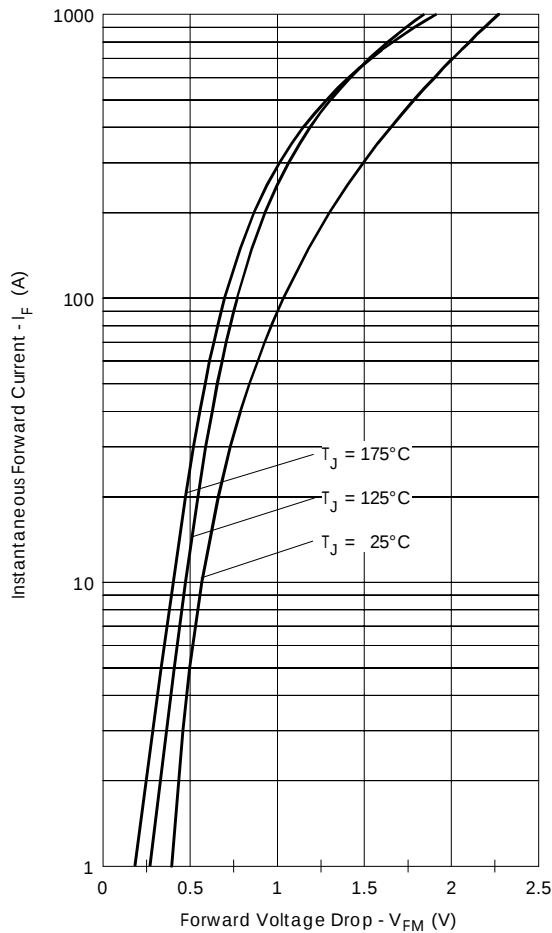


Fig. 1 - Maximum Forward Voltage Drop Characteristics

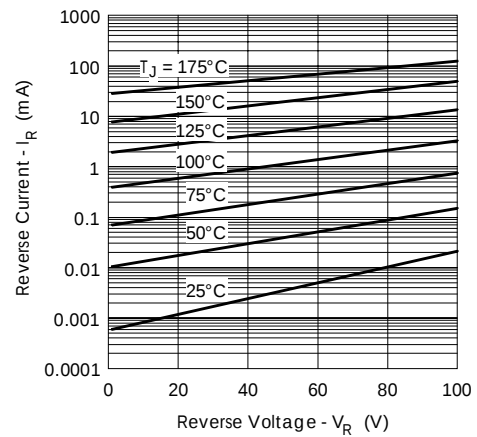


Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

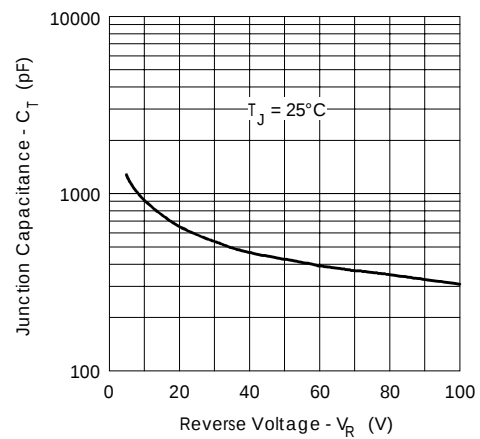


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

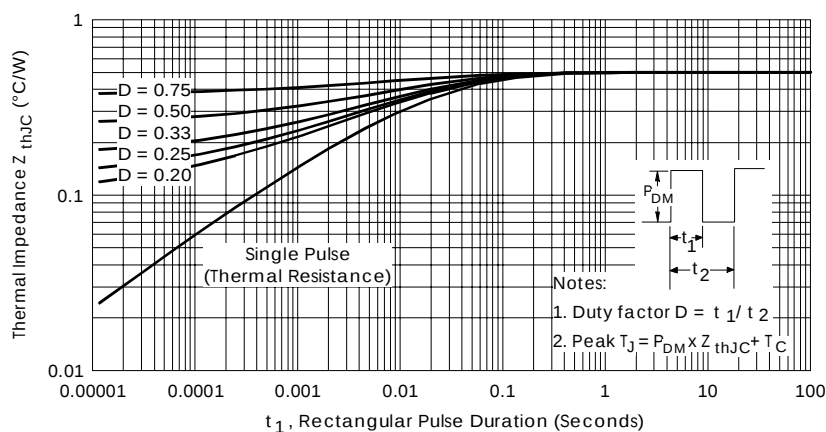


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

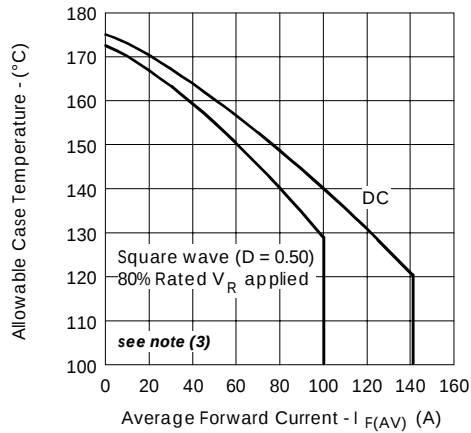


Fig. 5 - Maximum Allowable Case Temperature Vs. Average Forward Current

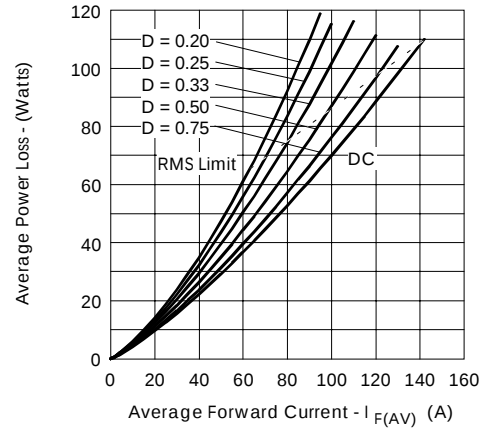


Fig. 6 - Forward Power Loss Characteristics

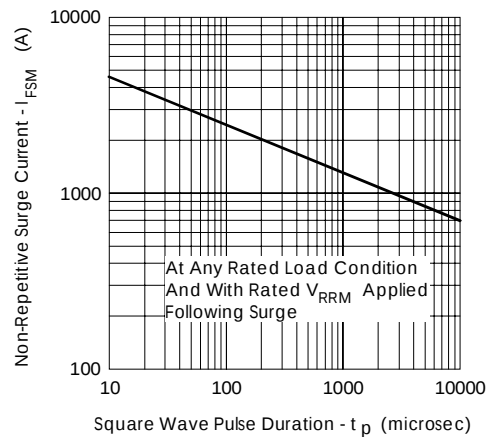


Fig. 7 - Maximum Non-Repetitive Surge Current

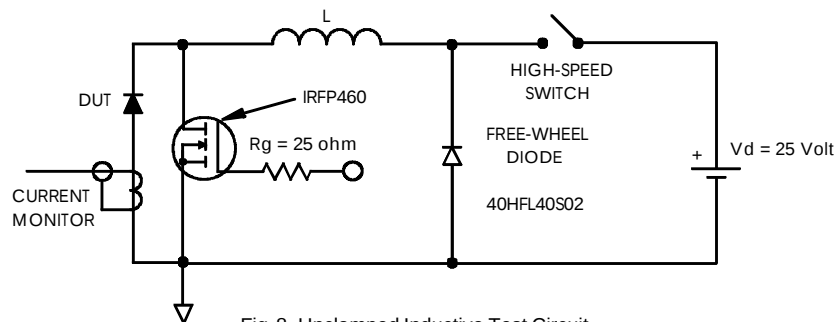


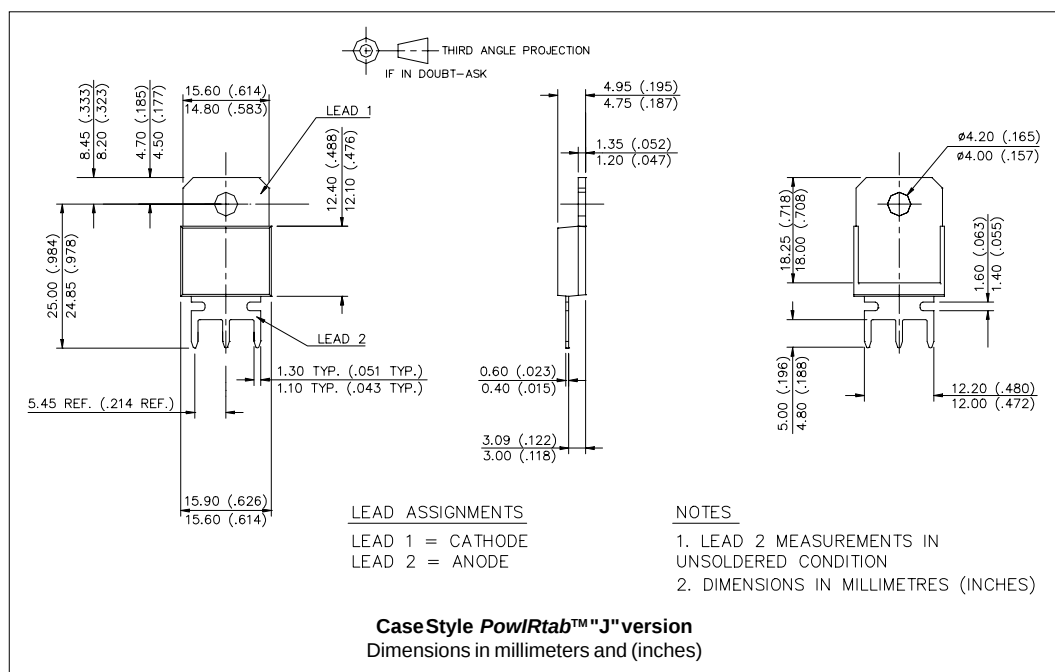
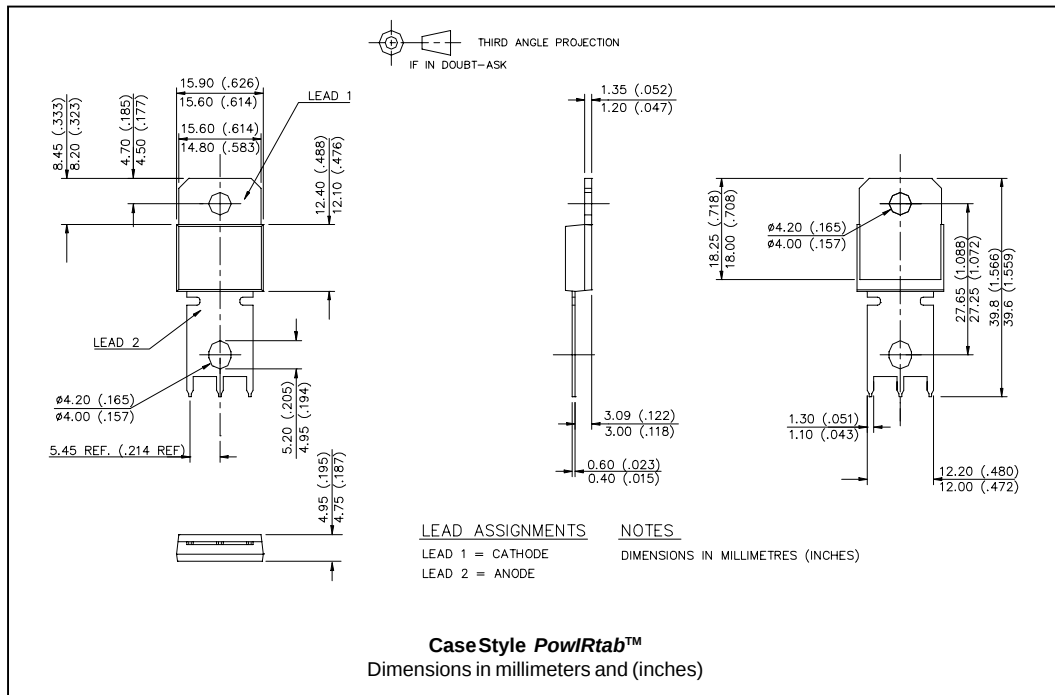
Fig. 8 - Unclamped Inductive Test Circuit

(3) Formula used: $T_C = T_J - (P_d + P_{d_{REV}}) \times R_{thJC}$;

P_d = Forward Power Loss = $I_{F(AV)} \times V_{FM} @ (I_{F(AV)} / D)$ (see Fig. 6);

$P_{d_{REV}}$ = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; $I_R @ V_{R1} = 80\% \text{ rated } V_R$

Outline Table



Ordering Information Table

Device Code		100	BGQ	100	J
		①	②	③	④
1	-	Current Rating			
2	-	Essential Part Number			
3	-	Voltage code: Code = V_{RRM}			
4	-	none = PowIRtab™ standard			
	J	= Short Lead Version			

Data and specifications subject to change without notice.
 This product has been designed and qualified for Industrial Level.
 Qualification Standards can be found on IR's Web site.

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